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ABSTRACT

The second year of an individualized multimedia bilingual magnet school project for non-English speaking background students in Philadelphia was evaluated. Approximately 275 students participated in programs at two sites. Bilingual multimedia learning centers containing materials for individual and small-group instruction and computer terminals for computer-aided instruction were formed at each site. Students from Korean, Spanish, Portuguese, Chinese, French, Italian, and Vietnamese speaking backgrounds were provided bilingual instruction as well as instruction in English as a second language. Improvement in English aural comprehension, English reading scores, English speaking skills, Spanish reading scores, attendance, and retention in school were comparable to or greater than those of comparison groups. (Author/RW)

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TITLE VII PROJECT
AN INDIVIDUALIZED MULTI-MEDIA BILINGUAL EDUCATION MAGNET MODEL

EVALUATION OF THE SECOND YEAR
1977-1978

Report
7965

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THE SCHOOL DISTRICT OF PHILADELPHIA

OFFICE OF RESEARCH AND EVALUATION
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February, 1979

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EXECUTIVE SUMMARY

PROJECT DESCRIPTION

An Individualized Multi-Media Bilingual Education Magnet Model served "limited-English-speaking-ability" pupils from a variety of linguistic backgrounds. At the elementary site, pupils whose mother tongue is Korean, Spanish or Portuguese participated in bilingual instruction. At the secondary site, pupils whose mother tongue is Chinese (Mandarin or Cantonese), French, Italian, Korean, Spanish, or Vietnamese were in bilingual instruction. English for speakers of other languages was provided for pupils who were not proficient in English. A Bilingual Multi-Media Learning Center (BIMLC) was begun at each site. This center contained a wide variety of materials for individual and small-group instruction of pupils. At the secondary site, the BIMLC contained terminals used for computer-aided and managed instruction.

KEY FINDINGS

After one and one half years of operation, all pupil peformance objectives were attained or considered attained. The rate of acquisition of aural comprehension exceeded the rate found among pupils of the comparison group--pupils in the Title I ESOL program.

Pupils in the program acquired speaking skills at the same rate as those in the comparison group. English reading scores increased at a faster rate than predicted from test-publisher's norms. Elementary school Hispanic pupils equalled or exceeded Spanish reading test norms for rural Puerto Rico. Secondary school Hispanic pupils' average score was equivalent to the 36th percentile of Puerto Rican tenth grade norms. Objectives regarding high school pupils' completion of the school year and attendance were attained.

INTRODUCTION

Bilingual-bicultural programs are usually designed to meet instructional demands which arise when a school population is composed of two groups, native English speakers and speakers of one other language. When there are more than two groups, bilingual education is often avoided because the number of subgroups consisting of pupils sharing a common first language, a common level of experience with English, and a common age or grade level becomes inordinately large. The Individualized Multi-Media Bilingual Education Magnet Model program is an attempt to deal with this diversity in a cost-effective way.

RATIONALE

Bilingual-bicultural programs are intended to provide support to limited English-speaking ability pupils through use of English and the home language for instruction. The Individualized Multi-Media Bilingual Education Magnet Model program was designed to explore the feasibility of providing bilingual-bicultural instruction in a setting serving several language groups. To accomplish this goal, the Bilingual Individualized Multi-Media Learning Center (BIMLC) concept was developed and implemented at two sites: Birney Elementary School and South Philadelphia High School. At the elementary school a bilingual program was available in Spanish, Portuguese and Korean. At the secondary site a bilingual program was available in Spanish, French, Italian, Vietnamese, Chinese (Mandarin and Cantonese) and Korean. At both sites, pupils who spoke other languages also participated. These pupils made use of English to Speakers of Other Languages (ESOL) curriculum and relevant materials housed in the BIMLC. As some teachers are multi-lingual, many members of the smaller linguistic groups received informal assistance through their mother tongue when needed. Tutoring supplemented classroom instruction for some students.

EXPECTED OUTCOMES

Pupils are expected to make a smooth transition from instruction in their home language and ESOL to mainstream instruction at the school. In the course of making the transition, competence in the home language is to be enhanced or retained and growth in academic skill areas is to be maintained. As the BIMLC provides instructional resources which supplement ESOL, acquisition of English should be facilitated.

At the secondary level, the use of the mother tongue and flexibility in course rostering is expected to result in good attendance and more students remaining in school until graduation.

PREVIOUS FINDINGS

Last year, 1976-1977, the project was funded for the first time. The grant award was issued later than expected, preventing management from implementing

the project according to the schedule in the proposal. The program was operational by mid-year and most enabling objectives had been attained by March. Evaluation of pupil performance during the spring suggested that the program accelerated pupils' mastery of English comprehension. Retention of pupils in the high school component was very good (96.2%). Other data collected (Spanish reading, English reading, and attendance) were difficult to interpret because of the lack of pretests and because of ongoing implementation.

PROGRAM IMPLEMENTATION

Some aspects of the program implementation process were stated as enabling objectives. These aspects will be discussed in the next section. Overall program implementation is in this section.

Nearly all elements of the program were carried out in a manner consistent with the proposal, though differences in ages of pupils in the target groups, and organization of the mainstream program at the two sites resulted in programs which differed in many ways.

Elementary Level. The Birney Elementary School program served pupils in grades one through four (Fifth and sixth grade pupils no longer attend the school.). The primary language groups were Korean, Portuguese and Spanish, though speakers of other languages participated in some program elements. When evaluators visited the site, they found a highly articulated program which seemed to be a good adaptation of the overall plan for the local situation.

In late Spring, 1978, there were 98 pupils in the elementary program. The site coordinator confirmed the evaluators' data which showed that the pupil population was quite stable. Most pupils who began the year completed it.

The school organization permitted all pupils to be assiged to regular, mainstream home room classes for at least two hours of the five hour instructional day. The largest group of participants (71 pupils) was engaged in all program activities. These pupils studied in ESOL classes incorporating use of the Birney school BIMLC on a regularly scheduled basis. They studied their home language (Korean, Portugese, or Spanish) and parts of the elementary school curriculum in classes conducted in their home language. In grades 1 and 2, mathematics and social studies were the focus of instruction in the home language. In grades 3 and 4, science was also studied.

Classes aimed at mastery of English, including those in the BIMLC, were comprised of pupils of heterogeneous language backgrounds. When the home language was the medium of communication, all members of the class were speakers of one language.

In addition to the large group there were two smaller ones. The first consisted of 13 pupils getting ESOL support, nine in the full ESOL program and four who made use of materials in the BIMLC. Many of the thirteen pupils were not speakers of the three main languages of the Birney program. Those only using the BIMLC were reported to be able to work in the English mainstream, but were in need of individually prescribed assistance. The second group consisted of fifteen pupils who were competent in English. They were permitted to continue studying their mother tongue.

When pupils were observed using the BIMLC, at least two and often three adults were present--one or two teachers and an aide. They arranged for pupils to work independently or in small groups, depending on the particular need of the pupil. The teaching equipment of the BIMLC was being used when evaluators were present.

The site coordinator reported that "three or four" pupils were unable to maintain the self-control needed for the independent work being done in BIMLC. These pupils were temporarily reassigned to mainstream classes while their classmates were using the BIMLC.

Secondary Level. At South Philadelphia High School, the secondary site, students were older and a greater variety of languages were spoken. As a result the program differed from the elementary one in some instructional aims and in organizational pattern.

Evaluators were able to obtain enrollment records for 170 pupils who attended the program and did not transfer to other schools or school systems during the course of the year. As expected in a magnet program for in-migrants and immigrants, the amount of time these students were on roll varied greatly. Ninety-eight (57.6%) were on roll for 172 or more days of the 182 days of the school year. The remaining students were on roll for shorter periods of time. Pupil records suggest that pupils were admitted every few days. The shortest enrollment at the site was thirty-nine days.

Since the secondary level program served both students of typical high school age and older, grade assignments needed to be more flexible than at the elementary site. Depending upon a pupil's experience in United States mainland schools, the pupil was assigned to one of three ungraded advisory (home room) classes or assigned to a graded mainstream advisory. During the course of the year, students in the ungraded advisories were assigned to grades on the basis of their school experience and academic achievement. The grade assignments were to be used for increasing the mainstreaming of students in the fall of 1978.

While each student had an individual schedule of classes, those in the ungraded advisories received more program services than those who were in the mainstream

advisories. Pupils with the least competence in English attended more periods of ESOL instruction than did others. If a pupil's first language was one of those offered at South Philadelphia, and ESOL was no longer needed, the pupil might study all subjects in the mainstream, but still receive support through one class per day in the home language.

Instruction in Spanish, French (primarily for South-East Asian and Haitian students), Italian, Vietnamese, Chinese (Cantonese and Mandarin), and Korean was provided. Though this instruction emphasized mastery of the home language, concepts of other academic areas were included. At times, teachers would serve as tutors when students had specific problems in academic subjects they were studying in English. In contrast to the elementary school, there were no courses for teaching mathematics, science, or social studies in the pupils' mother tongues. A course in American history for foreign-born students, conducted in English, was available for the students.

The BIMLC, which contained computer aided and assisted materials, was primarily used to reinforce ESOL. As it also contained English language materials to teach mathematics and career planning, it was possible to reinforce special vocabulary and language structures found in these areas and their content.

During the first part of the year, ESOL teachers used the BIMLC when they felt it was desirable, without following a set schedule. According to the site coordinator, by the end of the school year teachers were sending pupils to the BIMLC according to a schedule. Small groups of students were sent for individual attention. The instructional material used was specified by the teacher. The site coordinator and the BIMLC classroom aide arranged for the student to use it. When evaluators visited the center, students were observed using the computer equipment as well as other materials. Some were working individually, others were in small groups of three or four students.

As the computer based instruction is a unique aspect of the high school BIMLC, and reading (in English) one of the more critical instructional areas, evaluators gave the Computer Aided Instruction (CAI) Reading Program special attention. CAI reading consists of an introduction and seventeen topics ranging in complexity from "Sentence Recognition" to "Content for Meaning." Each topic begins with a pretest, contains a sequence of developmental lessons and ends with a posttest.

On March 14, the BIMLC aide interrogated the computer memory to determine the status of students. The results indicated that there were problems. The report, called a PRD, listed the topics each student had worked with, a pretest score, a developmental score (reflecting work on developmental lessons), and a posttest score. If the student passed the pretest, the student was to move to the next topic. If the student failed, developmental lessons were prescribed by the computer until a criterion was reached. Then a posttest was administered.

The PRD suggested that the system was misused or had malfunctioned. As of March, 137 pupils had used the program. While one pupil had worked through five topics, the majority of pupils (105) had worked with only one. Many records showed pretest scores of zero. All but two pupils had developmental scores of zero, and all posttest scores were zero. As the computer printout did not indicate that the zeros were test failures, evaluators do not believe they were really students' scores. Discussion with a staff member of the Division of Instructional Systems and the aide in charge of the secondary school BIMLC suggest that the problem may have been failure of students to operate the equipment properly. The aide also said the high school's 45 minute instruction periods were not long enough for limited-English-speaking-ability pupils to work through a substantial part of a program or test in English.

In the course of evaluating product objectives, a second concern emerged. It became apparent that movement of students in and out of the ESOL classes at the secondary site was greater than anticipated. While evaluators expected to find a substantial number of new students admitted during the school year, they also found that many students had transferred out of ESOL. The movement of students out of ESOL became apparent when it was noted that many who took aural comprehension and reading pretests did not take posttests. This matter was reviewed with the site coordinator, who said that there was pressure, from outside the program, on students to drop ESOL in favor of mainstream English classes. The project director made it clear that this was not consistent with program policy and was to be stopped. Evaluators had the impression that the director would take steps to relieve the pressure on students. As a result, more students should complete a full year of ESOL in 1978-1979.

The high school BIMLC contained books in languages other than English. According to the site coordinator the books were resource materials for use when needed by students and teachers. They included both language-arts materials and books in other subject areas. Thus at the secondary level, the BIMLC contained some materials which could assist the student through the use of the home language. These resource materials are important in a program where many students study science, social studies, and mathematics in mainstream classes, and teachers play a tutorial role.

In conclusion, it is the evaluators' judgement that the programs implemented at both the elementary and secondary sites were consistent with the intent of the program proposal. At the secondary site, the supervisor and site coordinator should take steps to reduce movement of students out of the ESOL classes in mid-year and assure that the computer is used correctly.

ATTAINMENT OF OBJECTIVES

Enabling Objectives

***Objective 1:** During 1977-1978, program staff will continue to identify, evaluate and purchase instructional materials and equipment for the Bilingual Individualized Multi-Media Learning Center. This will include:*

.Acquisition of appropriate grade-level instructional materials for teaching reading and for other subjects in each of the languages of the program.

.Reproduction and delivery of off-line materials needed for the computer-managed and computer-assisted instruction at the secondary school site.

.Acquisition of other programmed instructional materials.

This objective was attained. Documentation provided by project personnel confirmed that curriculum materials were being acquired, and observation of classes confirmed that they were being used.

Evaluators had an opportunity to review requisition (order) forms used to purchase materials and equipment. Site coordinators supplied lists of instructional equipment and materials on order and on hand. The documentation reflected steps taken during the Spring of 1977 for the program year 1977-1978.

Review of these documents showed that most of the "hardware" (e.g., Borg-Warner System 80 programmed learning sets) was for individualizing the instruction in English. Books and other instructional aides were in both the home languages of the pupils and in English and could be used for teaching language arts or other subjects. Site observations confirmed that equipment and texts were present at the schools.

Interviews with site coordinators revealed that materials and equipment were often delivered later than expected, limiting their usefulness during the year for which they were intended. However, the late delivery guaranteed their availability at the beginning of the following school year. In these interviews the site coordinators reported that, when asked to "plan early" for the next program they were unsure of the number of copies of materials which are designed to be kept by pupils (e.g., workbooks) that would be needed. Site coordinators also reported that grade-level appropriate materials in some languages (especially Oriental) were unobtainable. Curriculum development was initiated to remedy this problem.

Objective 2: A recruitment program will be conducted by project staff, district superintendents, principals of the two sites, and the Office of Informational Services that will attract non-English-dominant Spanish, Portugese, Korean, Chinese, Vietnamese, Italian and French-speaking pupils who live outside the regular boundaries of the project schools, thus creating the magnet program. This recruitment will begin in August, 1977 and continue through December, 1977. It will include:

.News releases sent to newspapers serving each of the language groups.

.Announcements on radio programs serving speakers of the languages of the program.

.Pupil recuritment by members of the program's parent advisory group.

.Notification to all principals of elementary and secondary schools describing the new programs and asking them to identify students who can benefit from participation in them.

This objective was considered attained. All four steps were taken to recruit students, but not all were carried out in all the languages of the program. There were also differences observed between the two program sites.

Evaluators obtained reports of newspaper articles in the Viet Hong (the Vietnamese Christian Newsletter), the Asian American Newsletter, a local Korean newspaper and Spanish press. To increase the visibility of the program at the secondary level, teachers prepared fliers in each of the target languages. According to the site coordinator, these fliers were distributed by students to shops around the city catering to different ethnic groups. They were also given to social agencies, including the Catholic Social Service Agency, Jewish Family Services, Nationalities Service Center, and Lutheran Children and Family Services. The high school also houses the Foreign Language Magnet program of the School District. News releases and articles about the Foreign Language Magnet program mentioned the Individualized Multi-Media Bilingual Education Magnet Project.

During 1977-1978 there were announcements on radio and television coverage. Two members of the Foreign Languages Division of the School District had weekly radio programs in Spanish, during which the project was discussed. Coordinators reported that there was a radio program in Korean about the elementary site. The secondary site coordinator was interviewed on television news and on radio.

The School District has a bilingual parents advisory group, which met monthly and included speakers of all languages serviced by the program. Members of the group were asked to carry information about the project to their communities.

As part of the on-going provision of service to limited-English-speaking ability pupils, a city-wide screening process was conducted. When the screening was undertaken, district superintendents and principals were informed of the availability of bilingual education through the Individualized Multi-Media Bilingual Education Magnet Project. The secondary site coordinator and the elementary site principal described similar processes being used when pupils wished to enter the project. The principal of the sending school contacted the site coordinator or principal, the appropriateness of the program for the pupil was determined, and the district superintendent effected the pupil's transfer. The coordinator and the principal both felt that principals of other schools knew about the program. The elementary site principal reported that he had discussed the program with other principals at district staff meetings.

In addition to the steps listed in the objective, individual efforts were made, especially by staff at the elementary site. The coordinator and the teachers reported making visits to families speaking the language they taught, in order to familiarize parents with the program.

The student recruitment activities resulted in different outcomes at the two sites. At the secondary level, there was a true "magnet" program. The site coordinator reported that only 50 of the approximately 180 pupils served resided in the school feeder area.

The elementary site principal reported that most of the pupils resided in the school feeder area, but some Korean-speaking families had moved into it because of the program. He noted that Hispanic families did not need to move because other Spanish-English programs served their children and that Portuguese families did not move into the feeder area because their desire for parochial school education outweighed parents' interest in a bilingual program for their children.

Objective 3: Program staff speaking Chinese, Italian, Portuguese, Vietnamese, Korean and French will, with the assistance of supervisors and evaluation personnel, develop informal reading inventories to be used in subsequent years to evaluate mother-tongue reading performance of pupils speaking these languages. These inventories will be prepared by June, 1978.

This objective was not attained. Acquisition and development of new curriculum materials in these languages occupied personnel (see Enabling Objective 1), preventing them from giving attention to test development. In following this course, they were in accord with priorities of the project management.

The project director stated that this objective continued to be a goal. In 1978-1979, an attempt would be made to develop the informal reading inventories.

Objective 4: Monitoring will show that all staff and students are familiar with the use of the individualized materials and equipment in the BIMLC.

This objective was considered attained. Both sites were visited by program evaluators extensively during the fall and spring. During the fall some teachers were not aware of all the resources of the BIMLC and some materials and equipment had not arrived. During the spring observations, virtually all ordered material had arrived and the teachers and students were using it. Site coordinators and aides appeared to have no difficulty in using most of the BIMLC resources, and students appeared to know how to use the equipment. Two problems noted by evaluators were use of the computer terminals at the secondary site and use of the Voxcom at the elementary site. The Program Implementation section of this report has already described the difficulty with the computer. The Voxcom, a device for associating spoken words with writing or pictures had not been used,

according to the elementary school site coordinator, because it requires extensive planning by teachers. Evaluators believe that problems associated with use of the computer terminals should be monitored by supervisory personnel. The problem with the Voxcom was regarded as minor and likely to be resolved by the elementary school staff.

PRODUCT OBJECTIVES

Objective 1: The rate of acquisiton of English speaking and comprehension skills of pupils, as measured by the Philadelphia ESOL Screening Test (Parts II and III) and the Test of Aural Comprehension, will be increased to a statistically significant degree ($p<.05$).

This objective was attained. Pupils with limited English language skills who took the Test of Aural Comprehension (TAC) in May knew more than they had known when tested half a year earlier. The improvement in comprehension was even higher than in the Title I ESOL Program. This difference in the rate of growth was significant and substantial.

Only 85 project pupils could be identified as having been tested twice during the year. These pupils, when tested in November or December, knew an average of 17.47 items. Prior analyses of over a thousand Title I ESOL pupils suggest that ESOL pupils tend to improve at the rate of .19 items per month (.08 attributable to exposure to an English-speaking environment and .11 to the effect of participation in an ESOL program). Since an average of 169 days elapsed between the tests at the Individualized Multi-Media Bilingual Project sites, the project pupils were expected to gain 1.07 items if their rate of language acquisition was that of their Title I peers. Thus project pupils were expected to know an average of 18.54 items at the time of the posttest in May if participation in the program was no more effective than being in the regular ESOL program. When retested, the 85 pupils knew an average of 22.88 items. The gain of 4.35 items above the average expected score was highly significant ($t=4.42$, $p<.01$).

In concluding that the program has had a substantial effect on language comprehension, evaluators used estimates of the effects of time from a sample of Title I schools. Though these estimates were shown to be precise enough for evaluating Title VII pupils (an error of one-third of an item is very unlikely), the appropriateness of comparing these two groups may be questioned. After all, the difference between the two groups in the spring may not be due to the program but to other, extraneous factors. Four alternatives have been examined. Evaluators believe that none can explain the superior performance of the project participants.

.Differences may be attributable to economic background especially since one of the sites was not funded by Title I ESOL. Evaluators believe that the economic backgrounds of Title I and Title VII pupils is comparable, because both sites met the eligibility criteria of Title I funding and both have had the Title I ESOL program in the past.

.Differences may be attributable to ethnic background since 90% of the Title I pupils were Hispanic and only 20% of the Multi-Media sample were. Because non-Hispanic pupils may have been different in initial ability, the observed growth in score may be due to ethnicity rather than program effects. To test this hypothesis, the average score of Hispanics on the early administration of TAC was compared to that of Non-Hispanics. When other relevant variables were controlled there was no significant difference at the .05 level between Hispanic and non-Hispanic pupils.

.Differences may be attributable to an interaction between ethnicity and the effect of time on language acquisition (e.g., non-Hispanic pupils may learn more rapidly than their peers.) To test this supposition the 85 pupils were divided into three language categories: Spanish, other European languages (e.g., French, Italian, Portugese), and all others (Korean, Chinese, Vietnamese, etc.). A Duncan multiple range test comparing the average improvement over expected score did not reveal any significant differences among the language groups. The 12 individual languages were also compared with each other. They did not differ significantly at the .05 level. The evaluators concluded that there was no difference in the rate of aural comprehension growth among the language categories. Since there was no significant difference among the groups either on their initial scores or their gains, evaluators concluded that the apparent effect of the program was not due to an interaction between ethnicity and the effect of time.

.The model specified for Title I ESOL pupils may have been correct for the ESOL pupils but incorrect for the Individualized Multi-Media Bilingual Education Project. To test this hypothesis, the same variables used in the Title I analysis were regressed on the gains of project pupils. None of the 9 variables: test form, sex, grade (2 trends), place of birth (2 variables), time in ESOL, time on mainland, and language was statistically significant. The overall F-test was likewise not significant. The multiple correlation between gains and the the other variables was small (.157). Thus the estimation process, which used initial scores and expected gains to yield expected scores, seems to have controlled for the background and time dependent variables. This lends support to the conclusion that pupils in the Multi-Media Bilingual project scored significantly better than they probably would have scored if they were not in the program.

Speaking skill growth was evaluated through pre-post administration of parts II and III of the Philadelphia ESOL Screening Test and through comparison of program participants with students in the citywide Title I ESOL program. The results showed gains in the bilingual program similar to those found in the ESOL program.

A random sample of 43 pupils who were studying ESOL in the context of the Individualized Multi-Media Bilingual Education Magnet Model Project were tested

during the spring of 1978. Their speaking scores were compared to scores at the time of initial screening. A t-test for correlated means showed that the gains (3.86 on part II of the screening test, 6.51 on part III) were highly significant ($p<.01$). They were virtually the same at the elementary site and at the secondary site.

As these gains could be due to a wide variety of factors, evaluators sought to compare the effects of the Title I ESOL and the programs. Drawing upon a technique developed for analyzing speaking scores for Title I ESOL, the relationship of postscores to prescores (linear, quadratic and cubic terms), program participation in 1976-1977, the number of months of English instruction per week, and whether the English instruction was provided in the context of the Title VII program were explored.

In addition to the 43 Title VII program participants, a random sample of 57 Title I ESOL program participants who had also taken pre- and posttests formed the subject pool. Previous analyses of Title I ESOL showed that both speaking scores increased significantly with the amount of exposure to the program--months of participation ($p<.10$) and hours of program exposure per week ($p<.001$). The results suggested that participation in Title I ESOL and the Individualized Multi-Media Bilingual Education Magnet Mode project were equally effective in increasing English speaking ability. Although students in the Title VII sample outperformed equivalent pupils in Title I ESOL (by 0.4 points on the first measure of speaking, 1.0 points on the second measure), this is a chance phenomenon, even when Part II and Part III are viewed in combination.

In conclusion, growth of English speaking skill appeared to proceed at a rate which was similar to the growth in the Title I ESOL program operating across the city. In contrast, the acquisition of comprehension proceeded at a rate superior to that found in the comparison program.

Objective 2: The rate of acquisition of English reading skills, as measured by the Wide Range Reading Test, will increase significantly ($p<.05$) among pupils enrolled in Grade 2 and above.

This objective was considered attained. The mean score increased at a rate greater than that predicted from test-makers norms. The 102 pupils who were tested in late December and late May grew 7.39 items. As each item is equivalent to one or more months of grade equivalent score, the typical pupil grew at least seven months in grade-equivalent score during a five month period.

The gain observed in the program was statistically significant ($t=6.2$, $df=101$, $p<.001$). The item gain was similar at the two sites. At the secondary site, the average gain of the 44 students tested during the two periods was 7.72 items. At the elementary site, the 58 students grew an average of 7.17 items.

In evaluating this objective, evaluators could not demonstrate that the observed gain in score was greater than would be found in Title I ESOL, the appropriate comparison group, because students in ESOL did not take the Wide Range Reading Test.

The Wide Range Reading Test requires the test administrator to judge whether a pupil reads words properly. As many program participants have accents, these judgments were difficult. In recognition of this problem, evaluators recommended, and project management has accepted, the use of a different test in 1978-1979.

Objective 3: The rate of acquisition of Hispanic pupils' reading competence in the Spanish language will increase significantly ($p<.05$). The tests to be used, depending on grade level are:

-Test de destrezas basicas en lectura

-Pureba de lectura (de Puerto Rico)

-The InterAmerican Test of Reading (level 4).

In lieu of measuring rate of acquisition of Spanish, competence of pupils during the spring was assessed. Results suggested that elementary pupils performed as well or better than pupils in rural Puerto Rico, the secondary level pupils performed about as well as the 36th percentile of the tenth grade norming group in Puerto Rican schools.

Test de destrezas basicas en lectura was administered in April and May to Hispanic pupils at the elementary site. Their performance is shown in Table 1. The mean score for pupils in grade 1 was substantially above the published norms for rural Puerto Rico--equivalent to the 95th percentile. In grades 2 and 3 the mean scores of the pupils were equivalent to the 50th percentile, indicating that pupils in the program performed as well as those in rural Puerto Rico.

The same test was also administered to the six program participants in the fourth grade because the number of pupils was too small to warrant use of another test, even though the test publisher does not provide percentile score equivalents for the grade. The fourth grade mean raw score was 13 points higher than found in the third grade. Third grade percentile equivalents provide a context for viewing the score. The mean score was equivalent to a third grade rural Puerto Rican percentile score of 75.

In the past, many Hispanic high school students have had scores close to the guessing level when given tests designed for their grade level. Thus, the high school evaluation plan called for use of a test designed for the junior high school grades, Prueba Inter-Americana, L4 CEs. Through use of a table of equivalent scores at adjacent test levels it was possible to estimate a tenth grade percentile

rank equivalent. The mean score of the 29 students tested was 45.48, which was equivalent to the 36th percentile of the tenth grade. The raw score standard deviation was 21.24, and the range was from 13 to 92. As most of the students were reported to be "ungraded," evaluators did not attempt to divide the high school students into separate grade level groups.

Objective 4: At least 75% of the 10th grade pupils and 85% of the 11th and 12th grade pupils enrolled in the program by October, 1977 will complete the school year.

This objective was attained. Evaluators were unable to describe pupil retention on a grade-by-grade basis because many secondary school participants were ungraded, but the more stringent criterion stated in the objective was exceeded by all secondary students.

One hundred and five students of the secondary program were on roll in the early fall. Of these, one moved from Philadelphia. Ninety-nine of the remaining 104 students (95.2%) completed the school year at the secondary site or transferred to another school. Twenty-six of these program participants graduated at year end.

Objective 5: Secondary level pupils served by the program will have an absentee rate no greater than that of other pupils in the same grade enrolled in the same school.

This objective was attained, but comparison on a grade-by-grade basis was not possible. The average daily attendance of secondary site program participants was substantially better than that of the school as a whole. It was also better than the average daily attendance of public high schools citywide.

As noted in the evaluation of the previous objective, grades were not assigned to many secondary program pupils. Evaluators believed that comparison of participants in the program (regardless of grade) to all students in the school was reasonable.

One hundred and seventy pupils participated in the program and did not transfer to another school before year-end. These students had an average daily attendance of 82.2%. The Division of Administrative and Survey Research reported that the average daily attendance at the secondary school site was 69.7%. As the standard error of the average daily attendance of pupils in the program was 1.5%, evaluators are confident that the difference between the school and the program is systematic, i.e., not due to chance.

Attendance in the bilingual program also compared favorably with the combined average daily attendance of all Philadelphia public high schools. The citywide attendance was 75.1%, and program students exceeded it by 7.1%.

It should be noted that the average attendance of program participants did not come from the same source documents as the school and citywide averages. Evaluators noted minor flaws in the documents containing program data but could not determine whether similar flaws, if any, existed in the others. Thus, the differences among the average daily attendances should not be regarded as precise. However, evaluators have little doubt that attendance was better in the secondary program than in the comparison groups. It is unlikely that flaws in the data could have accounted for differences as large as the ones observed.

SUMMARY AND CONCLUSION

The Individualized Multi-Media Bilingual Education Magnet Model Program was well managed and all pupil performance objectives were attained or considered attained.

The program has been in operation for one and one half years. During this brief period, project staff and management adapted ideas of the proposals to local realities, and brought many disparate elements together to develop bilingual programs for multi-ethnic student populations at the elementary and secondary levels.

With the exception of reading test development for non-Hispanic languages, enabling objectives were attained. Instructional material and equipment for Bilingual Individualized Multi-Media Learning Centers (BIMLCs) were organized, students were recruited, students and faculty learned how to use the BIMLCs, and bilingual education programs serving about 275 pupils came into being.

English comprehension of students grew at a rate which outpaced that of the Title I ESOL program, while speaking skill grew at about the same rate as in ESOL.

Wide Range Reading Test scores grew at a faster rate than predicted from the test maker's norms. Hispanic students compared favorably with pupils in Puerto Rico. Objectives for retention and attendance of high school pupils were met.

During the third program year, management and supervisory staff should take steps to assure better use of computer-based instruction at the secondary site. Stricter observance of the criteria for promotion out of the secondary component is also needed. Evaluators plan to improve some instrumentation and firm up the experimental designs for some pupil performance objectives. Apart from these issues, the program is sound.

TABLE 1

SPANISH READING PERFORMANCE AT THE ELEMENTARY LEVEL
(TEST DE DESTREZAS BASICAS EN LECTURA)

Grade	Mean Score	No. of Students	Standard Deviation	Percentile Equivalent of Mean*
1	67.9	11	12.1	95
2	72.3	3	2.5	50
3	88.3	7	13.7	50
4	101.3	6	14.9	**

*Rural Puerto Rican Norms, end of the year.

**No fourth grade norms are published. The percentile equivalent of the mean score is 75 on third grade rural Puerto Rican end-of-year norms.